



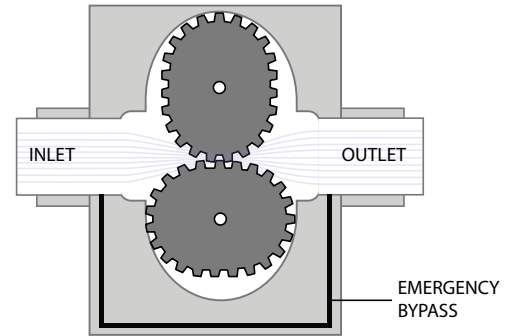
# Positive Displacement

## Positive Displacement Flow Meters for Liquids

### Method - Positive Displacement

Positive displacement flowmeters measure your flow rate by filling an internal vessel with a known amount of liquid, then releasing it down-stream before filling up again. Each fill-and-vent cycle creates an electrical pulse, which is then counted and totalled in order to get both the total amount of media used, and a flow rate.

These meters are specifically designed for liquid applications where flows may be low, as they maintain accuracy at low flow rates and are able to tolerate a wide range of different liquids, including unusually light or heavy liquids that can not be picked up by most other measurement methods.



The internal workings of an Oval Gear flowmeter - the liquid is forced between the teeth of the gears.

### Oval Gear Flow Meters

These meters (pictured on the right) use two oval-shaped gears resting in a special cavity. As the pressure of your flow builds up, the liquid forces its way between the center, rotating the two gears.

The rotation of the gears is picked up by sensors to generate pulses proportional to flow. Oval gear meters provide a very high level of accuracy, making them ideal for low rates.

### Piston Flow Meters

Piston flow meters use a precisely-measured chamber and a mechanical piston that holds a plate that seals off your pipework. As the liquid pressure in your chamber builds, it forces the piston back and the chamber empties.

A spring resets the piston back into place and the process begins again.

### Advantages

- Can handle very high viscosity liquids
- Can respond to extremely low flow rates
- Ideal for lubricating systems and oil flows

### Disadvantages

- High cost in large sizes
- Liquid must be very clean, filtered or strained
- High pressure losses
- Can seize or clog, with can block flow - although many version offer emergency bypass valves should this occur which allow reduced flow to pass through a clogged meter